(VIA EMAIL)

November 18, 2005

Mike Gallagher
PBT Coordinator
Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Dear Mike:

Please accept these comments on the second draft of the PBT rule on behalf of the Washington Toxics Coalition.

We appreciate the time, work, and resources that Ecology has put into developing a rule for Washington's groundbreaking PBT program. This program is an extremely important program for several reasons. First, it protects public health and the environment from dangerous chemicals by ensuring that the use and release of the worst toxic chemicals is phased out. Second, it notifies business, consumers, and government that PBT chemicals will be phased out and provides them and the marketplace with incentives to switch to safer chemicals. Finally, the program is a model for other state and local governments that want to follow Washington's lead and eliminate PBTs.

Specifically, we have the following comments:

Better Define Goals and Purpose of PBT Program and Eliminate WAC 173-333-300 (a)
We are extremely concerned that the current draft rule does not reflect the goals and purpose of the PBT program as outlined in the *2000 Strategy to Continually Reduce and Eliminate Persistent Bioaccumulative Toxins in Washington State (Strategy).* To demonstrate how much the rule has departed from the *Strategy,* we have attached a comparison of the *Strategy* and the proposed rule. As you will see, several important pieces of the *Strategy* have been dropped from the rule, including the goal of significant reductions in PBTs by 2020 and the commitment to reduce and phase out all of the chemicals on the PBT list. While we recognize that it may not make sense to include every piece of the *Strategy* in the rule, we firmly believe that the overarching goal of reducing and phasing out ALL of the chemicals on the PBT list must clearly be reflected in the goal and purpose of the rule.

Specifically, we propose the following two changes:

1. WAC 173-333-100 must be amended to eliminate the language indicating the goal of phase out may not be possible. We suggest the following change:

Ecology recognizes that many factors will influence ~~whether and when~~ how quickly this goal can be attained and that those factors will often vary depending on the PBT and the uses of the PBT.

2. WAC 173-333-300 (3) (a) must be deleted, or at the very least amended (see below). This section states that listing a chemical on the PBT list does not represent a decision that its uses and releases should be reduced and phased-out.

Both sections completely undermine the purpose of the PBT program, which is to reduce and eliminate PBTs in Washington. They create a huge loophole in the program and remove an important incentive—the phase-out of the use and release of PBT chemicals—for business, government, and consumers to find and use less toxic alternatives. If the sections remain as currently drafted, each time a CAP is developed, the focus will be on *whether* a chemical should be reduced and phased-out and not *how* a chemical will be reduced and phased-out. The decision of whether a chemical should be phased out has already been made when the chemical was listed. To continue the debate will be counterproductive and make it more difficult for Ecology to take action on these chemicals and to protect human health and the environment.

We understand that WAC 173-333-300 (3) (a) may have been included because of concern that listing a chemical on the PBT list means that it must be eliminated immediately without consideration of such important factors as the availability of alternatives. This concern is unfounded. The rule contains several provisions that allow for the consideration of alternatives, cost, and technical feasibility. If the concern is about the timing of phase-outs, we would suggest amending the language to read the following:

(a) Ecology's decision to include a particular chemical on the PBT list does not ~~represent a decision that all uses and releases of that chemical should be reduced and phased-out~~ necessarily mean the chemical must be phased out immediately. Rather it represents a decision by Ecology that the uses and releases of the chemical must be reduced and phased out on a reasonable timeline after careful consideration during the CAP process of the opportunities for reduction and phase out.

We believe this proposed language addresses any concern about the timing of phase-outs while at the same time committing to the reduction and elimination goals of the PBT program.

Keep Phthalates and Nonylphenol on the PBT List

We support the addition of the two phthalates and nonylphenol to the list. The chemicals satisfy the PBT criteria and should be on the list because of their dangerous effects on people and wildlife. Recent studies have linked phthalates to effects on human development, most recently reproductive problems in male infants. The European Union already is taking steps to ban the chemical in children's toys. Nonylphenol has been

shown to adversely affect the endocrine system, causing hormonal problems that can lead to numerous health effects, including reproductive problems.

Do Not Delay CAPs on Lead and Cadmium

We strongly oppose the decision to delay CAPs on lead and cadmium until after the U.S. Environmental Protection Agency (EPA) completes its Metals Assessment Framework. There is no scientifically based reason for waiting to take action on these metals. Scientific evidence makes clear that these metals persist in the environment, are bioavailable and build up in people's bodies, and are toxic in small amounts. Studies have shown lead is absorbed in the blood and bones and easily crosses the placenta to affect the developing fetus. The affect of lead on children is of particular concern because children absorb more lead, often as much as five to ten times more, than adults. Lead also is extremely toxic at low levels, causing learning disabilities, drops in IQ, and neurological problems.

Ecology's scientists appear to agree that both lead and cadmium are bioavailable. The footnote accompanying WAC 173-333-310 (3) states that "Ecology has prepared a preliminary review and believes that these compounds [lead and cadmium] are bioavailable under some environmental conditions based on monitoring data showing elevated levels in human and fish tissues." Despite these findings, Ecology has decided to wait for the completion of an EPA process that has been underway for at least four years and does not have a scheduled date for completion. This means that state action on lead and cadmium has been delayed indefinitely. This is inexcusable given the severe health problems that lead causes for children. Thus, we urge you to delete WAC 173-333-310 (3).

Include Other Chronic Health Effects in Toxicity Criteria

We fully support the persistence and bioaccumulation criteria. We are also generally supportive of the toxicity criteria. However, we are concerned that other toxic endpoints, such as endocrine disruption, will not be considered. We suggest amending the language in WAC 173-333-320 (2) (c) (i) to read:

> **(c) Toxicity.** The chemical or chemical group has the potential to be toxic to humans or plants and wildlife based on credible scientific information that:
>
> > (i) The chemical (or chemical group) is a carcinogen, a developmental or reproductive toxicant, or a neurotoxicant, or there is credible scientific evidence that the chemical has other chronic health effects, such as endocrine disruption;

Ensure Success of Voluntary Programs

The failure of the voluntary dental mercury MOU is evidence that unless backed with clear deadlines and mandatory actions, purely voluntary programs are not effective in achieving reductions and phase-outs. WAC 173-333-420 (1) (g) (iv) should be amended to include a description of how the effectiveness of voluntary measures will be evaluated, the timeline for implementation, and what will happen if the voluntary programs do not

work. It is critical that voluntary programs be backed up with timelines and performance measures and plans for mandatory actions in case the voluntary measures do not work.

Clarify Role of Safer Alternatives

We appreciate Ecology's willingness to incorporate the idea of safer substitutes into CAPs. However, the new language does not capture what we believe to be the role of safer substitutes in phasing out PBTs. The rule as currently drafted appears to use the availability of safer alternatives to determine whether to take action on a PBT rather than as stand alone recommendations. One of the most important purposes of the PBT program is to encourage businesses and others to develop safer alternatives so they can switch out of PBT chemicals. CAPs must include recommendations for switching businesses to safer alternatives if the safer alternatives exist. If safer alternatives do not currently exist, CAPs should include recommendations on how to encourage the development of safer alternatives and how Ecology will check back to determine whether a safer alternative has been developed.

Specifically, we suggest the following changes:

1) WAC 173-333-420 (1) (f) should be amended to include the following:

   (iv) Switching to safer alternatives
   (v) Encouraging the development of safer alternatives

2) WAC 173-333-420 (1) (f) (D) should be amended to eliminate the redundant analysis of the cost and effectiveness of safer alternatives. An economic and feasibility analysis is already included under WAC 173-333-420 (1) (f) (B) and (C).

3) WAC 173-333-420 (4) should be deleted.

In addition to these comments, we are resubmitting our comments on the first draft of the PBT rule, which we submitted on July 29, 2005. We have attached a copy of those comments for the record.

Please feel free to contact me if you have any questions at 206-632-1545 ext. 122.

Thank you again for all of your hard work and attention to this rule.

Sincerely,

Ivy Sager-Rosenthal
Environmental Health Advocate
Washington Toxics Coalition

Attachments

Comparison of Ecology's *PBT Strategy* and Proposed Draft Rule

2000 PBT Strategy	Proposed PBT Rule
Goal: Reduce and, where possible, eliminate the use and production of PBTs. (p.6) "The strategy is intended to challenge our thinking and modify the way we do business." (p. 15)	**Goal:** Reduce and phase-out PBT uses, releases, and exposures provided certain factors, such as environmental and human health benefits, economic and social costs, and consistency with other regulatory requirements, do not preclude the attainment of the goal (WAC 173-333-100)
Timeline: Significant progress in reducing and eliminating PBTs by 2020 (p. 6)	**Timeline:** No timeline for reductions and phase-outs.
Purpose of List: All PBTs on the list are slated for reduction and elimination either through CAPs or other agency actions such as permit reductions, economic development measures, and cleanups.	**Purpose of List:** List is primarily for developing CAPs, although CAPs will not be done on all of the listed chemicals. (WAC 173-333-410 (2) (b)) Purpose is further limited by section that states listing a chemical on the PBT list does not mean that all of its uses and releases should be reduced and phased out. (WAC 173-333-300 (3) (a)) List will also be used to develop voluntary programs, design monitoring programs, and improve public education.
Actions to achieve goals: Strategy sets out comprehensive list of actions Ecology will take to achieve reduction and elimination goal. These actions include: • Develop chemical action plans • Revise environmental regulations to address cross-media effects of PBT releases • Lower emission limits • Demonstrate how PBT releases can be reduced within classes of permits • Develop economic incentives • Increase focus on PBT-contaminated sites • Enhance efforts to prevent the use and release of PBTs from new industrial and commercial sources • Increase public awareness	**Actions to achieve goals:** Rule limits use of the PBT list to the following actions: • Develop chemical action plans • Guide decisions on ambient and biomonitoring • Identify voluntary measures for reducing and phasing out PBT uses and releases • Increase public awareness

(VIA EMAIL)

July 29, 2005

Mike Gallagher, PBT Coordinator
Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Dear Mike:

Please accept these comments on the PBT rule on behalf of the Washington Toxics Coalition.

We are extremely concerned about persistent toxic chemicals and the impact they have on our health and environment. These harmful chemicals have been linked to birth defects, reproductive failure, learning and behavioral problems in young children, cancer, and other health problems.

Increasing evidence shows that PBTs are not going away, but instead are increasing in our bodies, homes, and environment. For example, a study released this month by the Environmental Working Group found that babies in the United States average 200 contaminants, many of them PBTs, in their umbilical cord blood. A March 2005 study found thirty-five hazardous industrial chemicals, including PBTs like PCBs, dioxin, and toxic flame retardants, in household dust from ten homes in Washington.

A strong PBT program and rule will help reverse these alarming trends. The PBT program was developed to address the shortcomings of the current regulatory approach to PBTs. The *Proposed Strategy to Continually Reduce Persistent Bioaccumulative Toxins (PBTs) in Washington State* (Strategy) states, "The current, single-medium focus has produced a system that emphasizes treatment of pollution, rather than preventing pollution through process/product changes. Unfortunately this contributes to PBT contamination because low levels of PBTs can escape detection and/or end-of-pipe treatment…."

Tackling the problem of PBTs will require a new way of thinking. Solutions do not lie solely in changing permit limits or other "end-of-pipe" remedies. Instead, an effective policy will require that safer substitutes be used in place of dangerous chemicals and promote the development and investment in safer substitutes and new processes and product designs. It will also require the state to take action to prevent harm from new or existing chemicals when credible evidence of harm exists even when some uncertainty remains regarding the exact nature and magnitude of the harm.

We appreciate the time and energy Ecology has put into developing the draft rule. However, the rule must be strengthened so that Washington state can meet the

fundamental goal of the PBT program set out in the state's Strategy: the elimination of PBT chemicals in Washington state.

Specifically, we have the following comments:

(Please note that we have attached to these comments a redlined version of the rule with proposed language changes.)

Clarify the Goal of the Program Is To Eliminate PBTs

Section 300 (3) a. must be eliminated because it conflicts with the purpose of the PBT program. Ecology has made a determination that chemicals on the PBT list pose a threat to human health and the environment. Including Section 300 (3) a. significantly weakens the rule and the program because it sends a message that the goal is not necessarily to eliminate or reduce all uses of a PBT in Washington. As stated in the Strategy several times, the goal of the PBT program is to reduce and where possible eliminate the use and production of PBTs.

There are several other sections that should be changed to reflect the elimination goal. We have made the language changes in the redlined version. The sections are:

- 200 and 400—the definition of CAP must be changed to reflect that a CAP is a plan to reduce and eliminate PBTs and is not used to manage PBTs.
- 420 (f) – CAPs should include recommendations on how to reduce and eliminate a chemical, not how to manage a chemical.

Revise Criteria to Include Phthalates On the List

Numerous studies have shown that phthalates affect human development. Most recently, they have been linked to reproductive problems in male infants. By adding phthalates to the list, Ecology would not be forging new ground. Many other PBT lists developed by other states and international organizations include phthalates and the European Union has recently taken steps to ban phthalates in children's toys.

One way the rule could add phthalates would be to use P or B and T. This would result in the inclusion of those chemicals that are toxic and that people are exposed to on a daily basis but do not persist in the environment for long periods of time. Phthalates are an example. Even though these chemicals do not persist in the environment for the requisite time to be considered a PBT under the rule, people are constantly exposed to them because they are found in everyday consumer products like baby toys and cosmetics.

Also, we would suggest of using bioaccumulation factor (BAF) for humans. In some instances information is not available on bioaccumulation in aquatic organisms. In such instances, Ecology should use evidence that the chemical accumulates in animals or humans. Using this more flexible criterion will allow for the inclusion of chemicals, like phthalates and metals, where information on accumulation in aquatic organisms is lacking.

Include All PBT Chemicals on the List Regardless of Whether They Currently Pose A Problem In Washington

We should not wait until a chemical is found to specifically pose a problem in Washington before taking action. The PBT program is an opportunity to take preventive action before PBT chemicals contaminate our bodies and the environment. The PBT list should include all chemicals that qualify as a PBT regardless of if they "currently" pose human health or environmental impacts in Washington. Also, data on levels of PBTs in Washington is incomplete making it difficult to determine whether a PBT poses a problem in Washington.

Include Currently Registered Pesticides and Fertilizers On the List

We do not support the exemption for pesticides and fertilizers. Chemicals should be included on the PBT list because they meet the P, B, and T criteria. Exempting pesticides and fertilizers that qualify as PBTs from the list creates a huge loophole in the program so that dangerous toxic chemicals that are harmful to people and wildlife will continue to be used in Washington state.

For example, the pesticide lindane is a neurotoxic and carcinogenic pesticide that persists in the environment and is magnified in animals and people. Because lindane's agricultural and pharmaceutical uses are regulated by different agencies, no one is taking responsibility for the combined impacts of both uses. Lindane's pharmaceutical uses have been banned in California with no reported problems, and Canada is phasing out agricultural uses. Thus, viable alternatives exist for all uses.

Pesticides and fertilizers should be included on the list, regardless of whether they are registered under current law. The current registration system is not a guarantee that pesticides and fertilizers are safe. In fact, the current system neglects to evaluate aggregate and cumulative human risks for pesticides not used on food, and does not estimate such risks for fish and wildlife at all. It virtually ignores so-called "inert ingredients" that make up the bulk of many pesticide products and has yet to evaluate risks to the endocrine system.

The PBT program was established because current regulatory approaches are not working. It is not scientifically defensible to exclude pesticides and fertilizers from a program that has a goal of eliminating PBT chemicals. Science, not politics, should determine what qualifies as a PBT. We urge Ecology to include pesticides and fertilizers on the list.

If Ecology should decide to include the exemption, we ask that Ecology change the current language to reflect that pesticides that lose their registration after the adoption of the rule become eligible for the PBT list. Currently, the rule exempts a pesticide that was registered on the date of the rule's adoption. This would mean that regardless of whether a pesticide's registration becomes invalid at a later date, the pesticide would remain exempt. The intent of the exemption, we believe, was to only exempt those pesticides with an ongoing valid registration, rather than to provide a never-ending exemption for all pesticides validly registered at the time of the rule adoption.

Review and Update the PBT List Every Three Years.
Because new scientific information on chemicals is continually emerging Ecology should review, and if necessary update, the PBT list at least every three years.

Expand the Intended Uses Of the PBT List.
The intended uses of the PBT list in WAC 173-333-300 (2) do not reflect the goals and purposes of the PBT Strategy. The section must be expanded to include all of the elements of the PBT Strategy. The specific language is included in the redlined version of the rule attached to these comments.

Eliminate the Second Set Of P, B, and T Criteria.
We oppose using two sets of P,B, and T criteria—one for identifying chemicals on the list and one for choosing the chemicals for CAPs. There is no scientific reason to include a second set of criteria. All chemicals on the PBT list should be eligible for CAPs, not just those Ecology has determined are the "worst of the worst". The purpose of the list is to identify "chemicals that require further action because they remain in the environment for long periods of time where they can bioaccumulate to levels that pose threats to human health and environment . . . . " (WAC 173-333-300 (1)) If chemicals on the list have the potential to cause harm, then Ecology should be taking action on those chemicals on the list. There is no need to have a second set of criteria that make it more difficult to select a chemical for a chemical action plan.

Instead, we suggest the following approach for determining the chemicals on the PBT list and the best chemicals for CAPs:

1. Use the criteria outlined in proposed WAC 173-333-320 with the modifications we suggest above to determine what chemicals appear on the PBT list.

2. Establish criteria for ranking chemicals. Taking the list derived in step 1, apply the selection factors in proposed section 410 (3) (with modifications in attached red-lined version).

The rule also must clarify what data will be used to determine environmental presence, uses, and releases for the purposes of selecting chemicals for chemical action plans. We propose including all of the following:

- Body burden data
- Data from permits (NPDES, waste, and others)
- Data from the MTCA site list
- If Washington state data is not available (e.g. body burden), then information from other geographical areas such as the data in the national reports on human exposure to environmental contaminants and other state and local studies

- Data on uses from other states such as Massachusetts because use data is collected there.

CAPs Should Focus On Preventing Pollution Through Process/Product Changes and Finding Safer Substitutes

CAPs should call for finding solutions through process and product changes, not purely through end-of-pipe measures. Following this approach, we believe that one of the major factors used to evaluate potential CAP recommendations should be the availability of alternatives. We suggest changing section 420 (1) (f) to require that CAPs include recommendations for eliminating a chemical for any use where safer alternatives are identified. If a safer alternative is not available, then the CAP should set a timeline for phase-out and provide for research on potential alternatives and incentives for businesses actively involved in researching safer substitutes. Please see our suggested language changes in proposed section 420.

We also suggest that CAPs include recommendations for developing markets for less toxic alternatives. This approach can be a strong driver for getting large sectors (business, government) to move away from toxic chemicals to safer substitutes.

Clarify The Evaluation of Economic and Social Impacts

The rule is unclear about what economic and social impacts will be evaluated in CAPs (section 420 (1) (f)). How does Ecology plan to conduct this analysis? What economic and social impacts will be analyzed?

Voluntary Actions Must Include Timelines and Performance Measures

The rule should be amended to clarify that Ecology will require timelines for implementation and performance measures for any voluntary action adopted under a CAP. A voluntary action recommendation must also be accompanied by alternative reduction and mandatory actions if the voluntary action does not work.

Remove the Economic Analysis of the CAP

The economic analysis of the CAP is redundant. Ecology will already be conducting a cost analysis for each recommendation.

Establish Three-year Schedule For the Preparation of CAPs and Prepare Two CAPs Per Year.

The current process for determining what chemicals will be selected for CAPs (proposed WAC (3) b.-d.) is extremely time consuming and expensive and will slow down the CAP process significantly. Instead of putting each proposed chemical selection out for public comment, we suggest that Ecology develop and submit for public comment a three-year schedule for proposed CAPs. The schedule would outline the chemicals for which phase-out plans will be prepared, include a timeline for completing the plans, and provide the rationale for selecting each chemical. We believe such a schedule will provide stakeholders, the public, and policymakers with a clearer understanding of what chemicals Ecology will be addressing and the what resources will be necessary to do the work.

The pace for CAP development is too slow. Ecology has only completed two action plans in five years. This is much too slow when you considered how quickly these chemicals are increasing in the environment and our bodies. Ecology should be completing at least 2 CAPs per year.

Modify Several Definitions In Section 200

The definition of "credible scientific information" is vague as to what are "standard" methods and protocols. We suggest replacing "standard" with "generally accepted". The definition also is not clear on whether peer-reviewed scientific journals are acceptable. We suggest clarifying this point by specifically adding peer-reviewed scientific articles to the definition.

Because there are now two sets of criteria for determining whether a chemical is a PBT, the reference to "criteria established in this chapter" in the definition for "persistent bioaccumulative toxin" is unclear . Is a chemical a PBT because it meets the criteria outlined in section 320 or because it meets the second set of more stringent criteria in section 410? We believe the criteria in section 320 better define a PBT so the definition should specifically reference section 320.

In the definition of "sensitive population group," the term "different" should be eliminated. Sensitive population groups experience the same response to a chemical that others experience but just at a lower level of exposure.

Also the term "PBT" in the definition of "sensitive population group" should be changed to chemical because it is possible that a person's exposure comes from a chemical that contains a PBT but is not a PBT itself. The wood preservative pentachlorophenol is an example of this. It may not qualify as a PBT itself but it contains dioxin, which is a PBT.

Thank you again for your time and hard work. If you have any questions or concerns, please do not hesitate to contact me at 206-632-1545 ext. 122.

Sincerely,

Ivy Sager-Rosenthal
Environmental Health Advocate
Washington Toxics Coalition

Comments on the Draft PBT Rule
Chapter 173-333 WAC

Submitted by Washington Toxics Coalition

July 29, 2005

Part I - General Provisions

WAC 173-333-100 Introduction.

Persistent, bioaccumulative toxins (PBTs) are chemicals that pose a unique threat to human health and the environment in Washington State. They remain in the environment for long periods of time, are hazardous to the health of humans and wildlife, ~~can~~ build up in the food chain, ~~and~~ can be transported long distances and readily move between air, land and water media.

Because of the unique threat that these PBTs pose, special attention is necessary to identify actions that will ~~minimize or~~ eliminate threats to human health and the environment. While Ecology addresses PBTs through existing regulatory and non-regulatory programs, the current, single-medium focus has produced a system that emphasizes treatment of pollution rather than preventing pollution through process/product changes. ~~there~~ There remains a need for multi-media, cross-program measures that will reduce and eliminate releases and uses of PBTs over time.

The goal of this chapter is to reduce and eliminate the uses and releases of PBTs in Washington. Ecology recognizes that many factors will influence whether and when this goal can be attained and that those factors will often vary depending on the PBT and the uses of the PBT. This chapter establishes a process that Ecology will use to evaluate and identify actions that should be taken for particular PBTs. This process is designed to enhance actions being taken under other environmental laws and regulations.

WAC 173-333-110 What is the purpose of this Chapter?

(1) The purpose of this chapter is to:

a. Establish criteria Ecology will use to identify persistent bioaccumulative toxins that pose human health or environmental impacts ~~in Washington State;~~

b. Establish a list of persistent bioaccumulative toxins.

c. Establish procedures Ecology will use to review and periodically update the list;

d. Establish criteria for selecting persistent bioaccumulative toxins for which Ecology will prepare chemical action plans;

e. Define the scope and content of chemical action plans and establish the process Ecology will use to prepare those plans, and;

f. Define the processes Ecology will use to coordinate the implementation of this chapter with the Department of Health and other state agencies.

WAC 173-333-120 Applicability

(1) This chapter applies to the Department of Ecology (Ecology). This chapter does not impose new requirements on persons using or releasing PBTs, and it does not create new authorities nor does it constrain existing authorities for Ecology.

(2) This chapter provides for public involvement opportunities to participate in the Ecology processes for identifying PBTs and developing recommendations on measures to address uses and releases of PBTs.

WAC 173-333-130 Exemptions to the PBT list

Any pesticide with a currently valid registration ~~on [insert date of rule adoption]~~ that has been issued by the Environmental Protection Agency under the Federal Insecticide Fungicide and Rodenticide Act, 7 U.S.C. 136 et seq., or any fertilizer regulated under the Washington Fertilizer Act, chapter 15.54 RCW, will not be included on the persistent bioaccumulative toxin list established under this chapter.

WAC 173-333-140 Administrative Principles

(1) **Scientific information**. Ecology will base decisions on PBTs on sound public policy and credible scientific information. However, Ecology believes that lack of full scientific consensus should not be used as a justification for delaying reasonable measures to prevent harm to human health or the environment.

(2) **Public involvement.** Ecology will provide opportunities for public involvement during the decision-making processes for identifying PBTs and preparing a CAP.

(3) **Clear documentation**. Ecology will provide clear and understandable descriptions and rationale for decisions implementing this chapter.

(4) **Predictability**. Ecology will implement this chapter in ways that allow stakeholders, interest groups, and the public to plan their participation in decision-making processes and future responses to recommendations that result from those processes.

(5) **Coordination.** Ecology will coordinate with other state agencies and local governments, tribes, and interested parties in the development and implementation of CAPs and when revising

the PBT List.

(6) **Rule Amendments.** When amending any portion of this rule, Ecology will follow the requirements of the Administrative Procedures Act (APA) – Chapter 34.05 RCW.

PART II – Definitions

WAC 173-333-200 Definitions

"Administrative Procedures Act" or "APA" means the Washington Administrative Procedures Act, RCW 34.05.

"Bioaccumulation" means the process by which substances increase in concentration in living organism as they take in contaminated air, water, soil, sediment or food because the substances are very slowly metabolized or excreted**.**

"Bioaccumulation factor" or "BAF" means the ratio of the concentration of a chemical in an organism to the concentration of the chemical in the surrounding environment. The BAF is a measure of the extent to which the organism accumulates the chemical as a result of uptake through ingestion as well as contact from contaminated media, such as water.

"Bioconcentration factor" or "BCF" means the ratio of the concentration of a chemical in an organism to the concentration of the chemical in the surrounding environment. The BCF is a measure of the extent of chemical partitioning between an organism and the surrounding environment.

"Chemicals" means a naturally occurring element, mixture, or group of organic and inorganic compounds that is produced by or used in a chemical process.

"Chemical group" means a grouping of chemicals which share a common chemical structure.

"Chemical Action Plan" or "CAP" means a plan to reduce and eliminate PBTs from the environment that identifies, characterizes and ~~addresses~~ evaluates uses and releases of a specific PBT or a group of PBTs and ~~facilitates implementation of measures~~recommends actions Washington state should take to protect human health and the environment~~manage, reduce or eliminate such uses and releases~~.

"**Credible Scientific Information**" means information that is based on a theory or technique that is generally acceptable in the relevant scientific community, ~~or~~ has been collected or derived using generally accepted ~~standard~~ methods and protocols and appropriate quality assurance and control procedures, or has been published in a peer-reviewed scientific journal.

"Cross-media Transfer of Chemicals" means the movement of a chemical from one medium, such as air, water, soil, or sediment, to another.

"Degradation" means the processes by which organic chemicals are transformed into derivative chemicals and ultimately broken down.

"Ecology" means the Department of Ecology.

"Environment" means any plant, animal, natural resource, surface water (including underlying sediments), ground water, drinking water supply, land surface (including tidelands and shorelands) or subsurface strata, or ambient air.

"Environmental half-life" means the time required for the concentration of a chemical to diminish to half its original value. The environmental half-life of a chemical is a measure of a chemical's persistence in the environment.

"Feasible" means capable of being accomplished or brought about or capable of being utilized or dealt with successfully.

"High-exposure populations" means groups of people that are at greater risk because they have a higher potential for exposure than the general population.

"Log-octanol water partition coefficient" or "Log K_{ow}" means the ratio of a chemical's concentration in the octanol phase to its concentration in the aqueous phase of a two-phase octanol/water system as expressed in a logarithmic format.

"Media or Medium" means a component of the environment (air, water, soil or sediment) in which a contaminant is measured and an organism lives its life, and from which an organism can accumulate contaminants.

"Persistent bioaccumulative toxin" or "PBT" means a chemical or chemical group that meets or exceeds the criteria for persistence, bioaccumulation and toxicity criteria established in WAC 173-333-3320~~this chapter~~.

"**Persistence"** means the tendency of a chemical to remain in the environment without transformation or breakdown into another chemical form. It refers to the length of time a chemical is expected to reside in the environment and be available for exposure.

"**Sensitive Population Group**" means groups of people that exhibit an ~~different or~~ enhanced response to a ~~PBT~~ chemical than most people exposed to a similar level of the chemical~~PBT~~ because of genetic makeup, age, nutritional status or exposure to other toxic substances.

"Toxicity" means the degree to which a substance or mixture of substances can harm humans, plants or wildlife.

Part III – The PBT List and Criteria and Procedures for Revising the List

WAC 173-333-300 What is the purpose of the PBT List?

(1) **Purpose**. The purpose of the PBT List is to identify toxic chemicals that require further action because they remain ("persist") in the environment for long periods of time where they can bioaccumulate to levels that pose threats to human health and environment ~~in Washington~~.

(2) **Intended uses of the PBT Lis**t. Ecology will use the PBT List in the following ways:

a. **Chemical action plans**. To ~~select~~ identify chemicals for which chemical action plans will be ~~d~~developed~~evelopment~~.

b. **Ambient monitoring**. To help guide decisions on the design and implementation of Ecology programs for characterizing chemical concentrations in the ambient environment.

c. **Biomonitoring.** To encourage and inform the Department of Health regarding their efforts to monitor chemicals in human tissue.

d. **Public awareness**. To promote greater public awareness on the problems associated with PBT chemicals, the uses and sources of individual PBTs and steps that individuals and organizations can take to reduce PBT uses, releases and exposure.

e. **Voluntary measures**. To help identify opportunities for government agencies, businesses and individuals to implement voluntary measures for reducing and phasing out PBT uses and releases.

g. Improve Regulatory and Non-Regulatory Approaches: Ecology and Health will use the list to inform efforts to maximize the effectiveness of regulatory and non-regulatory approaches for phasing out the use and production of PBTs, including improving collaboration among regulatory programs and improving regulatory and economic incentives for eliminating PBTs. .

h. Clean up PBTs from historical sources: Ecology and Health will use the list to increase focus on PBTs found at contaminated sites and enhance efforts to clean up sediment contamination problems.

i. Prevent new sources of PBTs. Ecology will use the list to enhance efforts to prevent the use and release of PBTs from new industrial and commercial sources and to encourage extended product responsibility for new sources and products.

j. Build partnerships. Ecology and Health will use the list to promote efforts to eliminate PBTs and coordinate with other jurisdictional programs,

~~(3) **Relationship to actions addressing chemical uses and releases**. Ecology has determined that the chemicals on the PBT List pose a potential threat to human health and the environment~~

~~in Washington.~~

~~a.Ecology's decision to include a particular chemical on the PBT List does not represent a decision that all uses and releases of that chemical should be reduced and eliminated.~~

~~b.Ecology does not intend to use the PBT List as the sole basis for establishing discharge monitoring requirements that are not required under current permits. Ecology will evaluate and, if appropriate, prepare recommendations for additional monitoring requirements when preparing chemical action plans (WAC 173-333-420 and -430).~~

WAC 173-333-310 What chemicals or chemical groups are included on the PBT List?

(1) **Purpose.** This section identifies the chemicals and chemical groups that Ecology has determined meet the criteria specified in WAC 173-333-320.

(2) **PBT List**. Ecology has determined that the following chemicals or chemical groups meet the criteria specified in WAC 173-333-320.

Aldrin/Dieldrin 309-00-2/60-57-1
*Cadmium ~~(pending review of bioavailability)~~ 7440-43-9 (a)
Chlordane 57-74-9
Chlordecone (Kepone) 3734-48-3
DDT, p,p'- 50-29-3
Endrin 72-20-8
Heptachlor/Heptachlor epoxide 76-44-8/1024-57-3
Hexabromobiphenyl 36355-01-8
Hexabromocyclododecane 25637-99-4
Hexachlorobenzene 118-74-1
Hexachlorobutadiene 87-68-3
*Lead ~~(pending review of bioavailability)~~ 7439-92-1 (b)
Mercury 7439-97-6
Mirex 2385-85-5
Perfluorooctane sulfonates (PFOS) (c)
Pentachlorobenzene 608-93-5
Polycyclic aromatic hydrocarbons (PAHs) (d)
Polybrominated dibenzo-p-dioxins and dibenzofurans (PBDD/PBDF) (e)
Polybrominated diphenyl ethers (PBDEs) (f)
Polychlorinated biphenyls (PCBs) 1336-36-3
Polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDF) (g)
Polychlorinated napthalenes (PCN) 70776-03-3 (h)
Short-chain chlorinated paraffins (SSCP) 85535-84-8 (i)
Tetrabromobisphenol A 79-94-7
Tetrachlorobenzene, 1,2,4,5- 95-94-3
Toxaphene 8001-35-2

(3) **Categories**. Ecology will assign each chemical on the PBT List to one of the following three categories:

a. **Category** 1: Ecology will place chemicals in this category if the department determines that the chemical is used, released or present in Washington.
b. **Category 2:** Ecology will place chemicals in this category if the department determines that there is insufficient information to reach a conclusion on whether the chemical is used, released or present in Washington.
c. **Category 3**: Ecology will place chemicals in this category if the department determines that (i) all uses and releases of the chemical are prohibited under other state or federal laws or regulations or (ii) there are no feasible measures for reducing or phasing out uses and releases of the chemical beyond levels required under other federal and state laws and regulations, or (iii) is not present in Washington's environment.

(4) **Revising the PBT List**. At least every three years, Ecology will ~~periodically~~ review and, as appropriate, revise the PBT List in subsection (2) using the criteria and procedures in WAC 173-333-320 through -340.

WAC 173-333-320 What criteria will Ecology use to identify and add chemicals or chemical groups to the PBT List?

(1) **Purpose**. This section describes the criteria that Ecology will use to determine whether a chemical or group of chemicals should be included on the PBT List.

(2) **Criteria for identifying PBTs**. A chemical or group of chemicals will be included on the PBT List if Ecology determines it meets each of the following criteria:

a. **Persistence**. The chemical or chemical group can persist in the environment based on evidence that:

    i. The half-life of the chemical in water is greater than or equal to sixty (60) days; or
    ii. The half-life of the chemical in soil is greater than or equal to 60 days; or
    iii. The half-life of the chemical in sediments is greater than or equal to 60 days; and

b. **Bioaccumulation**. The chemical or chemical group has a high potential to bioaccumulate based on evidence that the bioconcentration factor or bioaccumulation factor in aquatic species for the chemical is greater than 1000 or, in the absence of such data, that the logoctanol water partition coefficient (log K_{ow}) is greater than five (5); and;

c. **Toxicity**. The chemical or chemical group has the potential to be toxic to humans or plants and wildlife based on evidence that:

    i. The chemical or a chemical group is known to cause or can reasonably be

anticipated to cause cancer or teratogenic effects, reproductive effects, neurological disorders or other acute or chronic health effects; or

ii. The chemical or chemical group is known to cause or can reasonably be anticipated to cause adverse effects in aquatic and terrestrial plants and animals.

d. **~~Additional~~ Alternative criteria applicable to metals:** ~~The chemical or chemical group is a metal and Ecology determines that it is likely to be present in forms that are bioavailable~~If no criteria are available on bioaccumulation, then there is evidence that the chemical accumulates in animals or humans.

(3) Degradation products. Ecology will consider both the chemical and its degradation products when making decisions on whether a chemical meets the criteria in subsection (2) of this section. If a chemical does not meet the criteria in this section for a PBT but degrades into chemicals that do meet the criteria in this section for a PBT, the parent chemical will be considered in the development of a CAP for those derivative chemicals.

WAC 173-333-330 What criteria will Ecology use to remove a PBT from the PBT List?

(1) Purpose. This section describes the criteria and factors Ecology will use to determine whether a chemical or group of chemicals should be removed from the PBT List.

(2) Criteria for removing a chemical from the PBT list. Ecology will remove a chemical or chemical group from the PBT List if the department determines that credible scientific information developed subsequent to the listing decision provides evidence that the chemical or chemical group does not meet the PBT criteria in WAC 173-333-320(2).

WAC 173-333-340 What process would Ecology follow to revise the PBT List?

(1) **Purpose.** This section describes the processes Ecology will use to notify the public and amend the PBT list after making a determination that chemicals or groups of chemicals should be added or removed from the PBT List.

(2) **Reviewing and updating the PBT list:** Ecology will ~~periodically~~ review and update WAC 173-333-310 at least every three years. The frequency of review will be determined by credible scientific information available on individual chemicals or chemical groups, rulemaking petitions submitted to Ecology, and available agency resources. Ecology will comply with the requirements for reviewing and responding to rulemaking petitions in the Administrative Procedures Act, Chapter 34.05 RCW.

(3) Public notification. If Ecology makes a preliminary determination that a chemical should be added or removed from the PBT List, it will notify the public through an announcement posted on the Ecology website and published in the state register.

(4) **Amending the PBT List.** If Ecology makes a final determination that a chemical or chemical group should be added or removed from the PBT List, the department will initiate actions to amend WAC 173-333-310 through formal rulemaking.

Part IV - Chemical Action Plans (CAPs)

WAC 173-333-400 What is a chemical action plan (CAP)?

(1) A chemical action plan (CAP) is a plan to reduce and eliminate PBTs from the environment that identifies, characterizes and evaluates uses and releases of a specific PBT or a group of PBTs and ~~includes recommendations~~recommends ~~on~~ actions Washington state should take to protect human health and~~or~~ the environment.

(2) CAPs will include recommendations for:

a. Reducing and eliminating uses and releases of the specific PBT or group of PBTs addressed in the CAP;

b. Properly disposing of ~~Managing~~ products or waste that contain the specific PBT or group of PBTs addressed in the CAP;

c. Actions individuals can take to ~~Minimizing~~ minimize their exposure to the specific PBT or group of PBTs;

d. Collecting additional information needed to evaluate the feasibility of potential actions; and

e. Measuring or monitoring the effectiveness of actions being implemented in Washington.

f. Developing markets for less toxic alternatives.

WAC 173-333-410 What evaluation factors and processes will Ecology use to select PBTs for chemical action plan preparation?

(1) **Purpose.** The purpose of this section is to describe the evaluation factors and processes Ecology will use to decide when to develop a chemical action plan for a particular chemical or group of chemicals included on the PBT list.

~~(2) **Candidates for CAP development.** Ecology will consider developing chemical action plans for chemicals on the PBT list that meet the following criteria:~~

~~a.Ecology determines that the chemical or chemical group has a half-life in water that is greater than or equal to 60 days, soil or sediment that is greater than or equal to 180 days;~~

~~b.Ecology determines that the chemical or chemical group has a bioconcentration factor or bioaccumulation factor in aquatic species that is greater than 2000; and~~

~~c.Ecology determines that the chemical or chemical group is "toxic" as defined in 173-333-302 (2) (c).~~

(3) Decision-making process: Ecology will consult with the Department of Health to develop a three-year schedule for the ~~select the chemicals for~~preparation of chemical action plans ~~preparation~~. The schedule shall outline the chemicals for which chemical action plans will be prepared, the timeline for completing the plans, and the rationale for selecting each chemical. The schedule will provide for the completion of no less than two chemical action plans each year. The process for deciding when to prepare a chemical action plan for a particular chemical or group of chemicals includes the following:

a. Selection factors. Ecology will consider the following factors when deciding whether to prepare a chemical action plan for a particular chemical or group of chemicals identified in WAC 173-333-310(2):

i. Relative ranking. The relative ranking assigned to each PBT based on Ecology's evaluation of information on PBT characteristics, uses of the chemical in Washington, releases of the chemical in Washington, and the levels of the chemical present in the Washington's environment and people.

ii. Opportunities for reductions. Whether there are opportunities for reducing or phasing out uses, production or releases of the PBT in Washington. In reviewing available information, the agencies shall consider whether more than one PBT is present in particular products, generated in particular processes or released from particular sources (co-occurring chemicals).

iii. Multiple chemical releases and exposures. Scientific evidence on the combined effects of exposure to one or more PBTs and other substances commonly present in the Washington environment.

iv. Sensitive population groups and high-exposure populations. Scientific evidence on the susceptibility of various population groups including the timing of the exposure and the cumulative effects of multiple exposures.

v. Existing plans or regulatory requirements. Whether there are existing plans or regulatory requirements that have been effective in reducinge and phasinge-out uses and releases of a particular PBT or group of PBTs.

b. Preliminary selection. Ecology will prepare a written ~~summary of the~~ preliminary ~~decision~~ three-year schedule for the preparation of~~to prepare a~~ chemical action plans ~~for one or more PBTs~~ and the rationale for selecting thee~~at~~ particular PBT or group of PBTs.

c. Public notice and comment. Ecology will notify the public when it ~~makes a~~completes the preliminary ~~selection~~ schedule and provide an opportunity for public review and comment. Ecology will notify the public through an announcement published in the

Washington state register and posted on the Ecology website. Ecology will also send a written announcement to interested persons and organizations. Ecology will provide sixty days, from the date the notice is published in the Washington state register for the public to review and submit comments on the preliminary ~~selection~~schedule.

d. Final decision. Ecology will review all public comments on the preliminary ~~selection~~ schedule prior to making a final decision to prepare ~~a~~ chemical action plans~~ for a particular PBT or groups of PBTs~~. Ecology will notify the public of the final ~~decision~~ schedule through an announcement published in the Washington state register and posted on the Ecology website. Ecology will also provide written notification to individuals or organizations who submitted comments on the preliminary selection.

e. Schedule updates. Ecology will update the schedule for chemical action plans at least every three years and will follow the process specified in this section.

WAC 173-333-420 What are the contents of a CAP?

(1) Contents of the chemical actions plans: Chemical action plans will include, as appropriate, the following types of information, evaluations and recommendations:

a. **General chemical information**. General information including, ~~but is not limited to~~, chemical name, properties, uses and manufacturers.

b. **Production, Uses and Releases**. An analysis of information on the production, unintentional production, uses and disposal of the chemical. This will include estimates on the amount of each PBT used and released from all sources or activities in Washington and other sources that may contribute to exposures in Washington. Sources may include other chemicals or products that are known or suspected to degrade to the chemical included on the PBT List.

c. **Human health and environmental impacts**. ~~An evaluation of~~Information on the potential impacts on human health and the environment associated with the use and release of the PBT chemical. This will include ~~consideration of available~~ information on the levels of the PBTs present in Washington's environment, the likely fate and transport mechanisms, available body-burden data, toxicity effects, and the rates of diseases that have been associated with exposure to the particular PBT.

COMMENTS: An evaluation of the health and environmental impacts is not necessary as part of the CAP. If a chemical is on the list and eligible for a CAP, then the chemical has already been determined to be harmful to human health and the environment. Further analysis is not warranted and will only waste time on a debate about whether a chemical is a problem. We recommend requiring information on the health and environmental impacts instead of requiring an

evaluation.

d. **Current management approaches.** An evaluation of the regulatory and non-regulatory approaches that influence production, uses, releases and management of each PBT.

e. **Alternatives.** An analysis of the alternatives available to the chemical.

e. ~~**Identification**~~ **Analysis of policy options**. An analysis ~~list~~ of policy options for ~~managing, reducing and eliminating the different uses and releases of the PBTs addressed in the CAP~~addressing each PBT. ~~The range of options for particular uses and releases will include~~In conducting the analysis, the department reduction and elimination options, including any material, process or function substitutions that could be implemented to replace the chemical.~~:~~

~~i.A no-action option;~~
~~ii.An option that results in the elimination of PBT uses and releases;~~
~~iii.An option to manage chemicals to reduce exposure; and~~
~~iv.~~i. ~~Other options, including the use of available substitutes, which will enable full consideration of the opportunities and constraints for reducing particular uses, releases and exposures.~~

f. **Recommendations for reducing and eliminating the chemical:** The recommendations will include:

i. Recommendations on actions to ~~manage,~~ reduce and eliminate~~or phase-out~~the uses and releases of the PBT addressed in the CAP. The recommendations may include proposals for further information collection, monitoring, and regulatory action. The recommendations will be based on an evaluation of the following factors:

(A) ~~Feasibility of implementing the action~~Availability of alternatives. Whenever safer alternatives for a particular use are identified, the recommendation shall be to eliminate the chemical for that particular use. If a safer alternative is not available, then the recommendation shall be to conduct additional research on potential alternatives and provide incentives for those businesses actively involved in researching potential alternatives. The department shall re-evaluate the availability of alternatives at least every two years after the issuance of the CAP~~-~~;

(B) Environmental and human health benefits associated with implementing the action;

(C) Economic and social impacts associated with implementing the action;

and

(D) Consistency with existing federal and state regulatory requirements.

ii. A description of the steps Ecology will take to implement the CAP, including a description of:

(A) The existing resources and necessary additional budget Ecology intends to use;

(B) Potential funding sources for CAP implementation, including those that tie implementation costs to PBT sources and products.

(C) How Ecology intends to inform and educate affected persons about the CAP; and

(D) How Ecology will promote and assist voluntary actions, including timelines for implementation of the voluntary action, performance measures, and alternative reduction and mandatory actions if the voluntary action is not successful.

(E) How Ecology will pursue further regulatory actions identified in the plan.

iii. Performance Measures**:** A description of interim milestones to assess progress and the use of objectively measurable outcomes, including recommendations for environmental and human health monitoring to measure levels of the chemical(s) ~~(in the CAP)~~ over time.

g. **Other:** Other information that Ecology determines is necessary to support the decisionmaking process.

(2) Regulatory consistency: When evaluating the consistency with existing federal and state regulatory requirements under subsection (1)(f)(i)(D) above, Ecology will:

~~a.Ensure that the recommendations do not violate existing federal or state laws;~~

~~b.Determine if the recommendations would impose more stringent performance requirements on private entities than on public entities, unless already required to do so by federal or state law, and if so, describe the justification for doing so; and~~

~~c.~~a. Determine if the recommendations differ from federal regulations and statutes, and if so, explain why the difference is necessary and ~~how~~ whether Ecology will

coordinate with other federal, state, and local laws applicable to the same activity or subject matter.

(3) Economic analyses. ~~In assessing economic impacts under subsection (1)(f)(i)(C), Ecology will identify costs of implementing the recommendations. This may include a qualitative and/or quantitative analysis of the probable benefits and costs of the CAP.~~

WAC 173-333-430 What process will Ecology use to develop CAPs?

(1) Purpose. The purpose of this section is to identify the process Ecology will use to develop CAPs.

(1) Ecology will prepare two final CAPs per year.

(2) Workplan/Scoping. Once a chemical is selected for CAP development, Ecology will initially plan and scope the CAP of the selected chemical based upon available information regarding the chemical's products, uses and releases; human health exposure and ecological hazards; environmental releases, fate, and transport; environmental concentrations and available substitutes; available options for managing uses and releases; estimated costs, benefits and effectiveness of alternate management options; and any other information Ecology determines is necessary to support the CAP development process. Ecology will consult with the Department of Health regarding all portions of the CAP related to human health exposures.

(3) Advisory Committee. Ecology will create an external advisory committee for each CAP that Ecology develops. The purpose of the advisory committee is to provide stakeholder input and expertise.

a. The advisory committee membership will include, but not be limited to representatives from: large and small business sectors, community, environmental and public health advocacy groups, local governments, and public health agencies. When appropriate, representatives from the following groups will also be invited to participate: agricultural groups, worker safety advocacy groups, and other interested parties. Federally recognized tribal governments will also be encouraged to participate. In addition, representation from other state executive agencies may be requested to provide input and to represent agency interests in the CAP development process. Outside experts (if needed) may be requested to provide technical expertise.

b. A neutral-third party facilitator may be hired to facilitate advisory committee meetings.

c. The advisory committee will follow a consultative process, where Ecology will draft the CAP in consideration of input from Advisory Committee members.

d. All advisory committee meetings will be open to the public. Ecology will notify the public of advisory committee meetings through an announcement posted on the Ecology web site and written notification to interested individuals and organizations.

(4) Information Collection Phase: Ecology will collect all necessary and up-to-date information regarding the selected chemical. CAP Advisory committee members will be asked to contribute, and as appropriate, review information from Ecology during this phase of CAP development. The Department of Health will be asked to review any information related to human health.

(5) Draft Recommendations: Ecology will develop a draft CAP for advisory committee review and comment. Ecology will review all advisory committee comments and, as appropriate, revise the draft CAP prior to distributing it for public review and comment.

(6) Public Review and Comment: Ecology will notify the public when it has developed a draft CAP and provide an opportunity for public review and comment. The public comment period for each draft CAP will be a minimum of 60 days. Ecology will notify the public through an announcement posted concurrently on the Ecology website, a notice in the Washington State Register, and sent to interested persons and organizations. The comment period shall start from the date the notice is published in the Washington State Register. During the comment period, Ecology will hold a minimum of two public meetings on the draft CAP. One meeting shall be held on the western side of the state, and one meeting shall be held on the eastern side of the state. Ecology may hold additional public meetings during the public comment period if determined necessary. Ecology will provide a response to all public comments.

(7) Final Recommendations: Ecology will review all public comments on the draft CAP prior to issuing the final recommendations. Ecology will notify the public of the final recommendations through an announcement that will be published in the state register and posted on the Ecology website. Ecology will also provide written notification to individuals or organizations who submitted comments on the draft CAP.

(8) Coordination with other agencies. Ecology will coordinate with other government agencies and interested parties as appropriate on the implementation of the final CAP. Ecology will consult with the Department of Health on public information materials addressing food safety issues.

Explanatory Notes Regarding Specific Chemicals on the PBT List (WAC 173-333-310)

a. **Cadmium**: Ecology has concluded that cadmium meets the criteria for persistence, bioaccumulation and toxicity in WAC 173-333-320(2). However, Ecology has not completed its review of information relevant to making a determination on whether cadmium is "...likely to be present in forms that are bioavailable..."(WAC 173-333-320(2)(d)). Ecology intends to complete that review and make a determination on whether to include cadmium on the PBT list prior to distributing the proposed rule for public review and comment.

b. **Lead**: Ecology has concluded that lead meets the criteria for persistence, bioaccumulation and toxicity in WAC 173-333-320(2). However, Ecology has not completed its review of information relevant to making a determination on whether lead is "...likely to be present in forms that are bioavailable..." (WAC 173-333-320(2)(d)). Ecology intends to complete that review and make a

determination on whether to include lead on the PBT list prior to distributing the proposed rule for public review and comment.

c. **Perfluorooctane sulfonates (PFOS)**: PFOS (Molecular formula $C_8F_{17}SO_3$) is a member of a group of organic compounds that consists of an eight-carbon chain where the hydrogen atoms have been substituted with fluorine atoms and a reactive sulfonate group at one end of the chain. Ecology has determined that PFOS meets the draft PBT criteria in WAC 173-333-320(2). PFOS derivatives and salts include: acid (CAS 1763-32-1); ammonium salt (CAS 29081-56-9); diethanolamine salt (CAS 70225-14-8); lithium salt (CAS 29457-72-5); and potassium salt (CAS 2795-39-3).

d. **Polycyclic aromatic hydrocarbons (PAHs)**: PAHs are a group of compounds composed of two or more fused aromatic rings. Ecology has determined that the following PAH compounds meet the draft PBT criteria in WAC 173-333-320(2): dibenzo(a,h)anthracene (CAS 53-70-3); 3-methylchlolanthrene (CAS 56-49-5); benzo(r,s,t)pentaphene (CAS 189-55-9); dibenzo(a,h)pyrene (CAS 189-64-4); benzo(g,h,i)perylene (CAS 191-24-2); dibenzo(a,e)pyrene (CAS 192-65-4); indeno(1,2,3-cd)pyrene (CAS 193-39-5); 7Hdibenzo(c,g)carbazole (CAS 194-59-2); perylene (CAS 198-55-0); benzo(j)fluoranthene (CAS 205-82-3);benzo(b)fluoranthene (CAS 205-99-2); fluoranthene (CAS 206-44-0); benzo(k)fluoranthene (CAS 207-08-9); benzo(a)phenanthrene (CAS 218-01-9); dibenzo(a,j)acridine (CAS 224-42-0); and dibenzo(a,h)acridine (226-36-8).

e. **Polybrominated dibenzo-p-dioxins and dibenzofurans (PBDDs/PBDFs)**: PBDDs/PBDFs consist of two groups of tricyclic aromatic compounds with similar chemical and physical properties. Ecology has determined that the following PBDD/PBDF congeners meet the draft PBT criteria in WAC 173-333-320(2): 2,3,7,8-tetrabromodibenzo-p-dioxin (CAS 50585-41-6); and 2,3,7,8-tetrabromodibenzofuran (CAS 67733-57-7).

f. **Polybrominated diphenyl ethers (PBDEs)**: PBDEs are a class of chemicals with the general chemical formula of $C_{12}H_{(9-0)}Br_{(1-10)}O$ with the sum of H and Br atoms always equal to 10. There are theoretically 209 congeners which can be divided into 10 congener groups (mono- through decabromodiphenyl ethers). Ecology has determined that the following congener groups meet the draft PBT criteria in WAC 173-333-320(2) and/or degrade to congeners that meet the draft PBT criteria in WAC 173-333-320(2): pentabromodiphenyl ether (CAS 32534-81-9); octabromodiphenyl ether (CAS 32536-52-0); decabromodiphenyl ether (CAS 13654-09-6).

g. **Polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDDs/PCDFs)**: PCDDs/PCDFs consist of two groups of tricyclic aromatic compounds with similar chemical and physical properties. Ecology has determined that the following PCDD/PCDF congeners meet the draft PBT criteria in WAC 173-333-320(2): 2,3,7,8-tetrachlorodibenzo-p-dioxin (CAS 1746-01-6); 1,2,3,7,8-pentachlorodibenzo-p-dioxin (CAS 40321-76-4); 1,2,3,4,7,8-hexachlorodibenzo-p-dioxin (CAS 39227-28-6); 1,2,3,6,7,8-hexachlorodibenzo-p-dioxin (CAS 576-53-8); 1,2,3,7,8,9-hexachlorodibenzo-p-dioxin (CAS 19408-74-3); 1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin (CAS 35822-46-9); 1,2,3,4,6,7,8,9-octachlorodibenzo-p-dioxin (CAS 3268-87-9);): 2,3,7,8-tetrachlorodibenzofuran (CAS 51207-31-9); 1,2,3,7,8-pentachlorodibenzofuran (CAS 57117-41-6); 2,3,4,7,8-pentachlorodibenzofuran (CAS 57117-41-4); 1,2,3,4,7,8-hexachlorodibenzofuran

(CAS 70648269); 1,2,3,6,7,8-hexachlorodibenzofuran (CAS 57117-44-9); 1,2,3,7,8,9hexachlorodibenzofuran (CAS 72918-21-9); 2,3,4,7,8,9-hexachlorodibenzofuran (CAS 60851-34-5); 1,2,3,4,6,7,8-heptachlorodibenzofuran (CAS 67562-39-4); 1,2,3,4,7,8,9-heptachlorodibenzofuran (CAS 55673-89-7);1,2,3,4,6,7,8,9-octachlorodibenzofuran (CAS 39001-02-0).

h. **Polychlorinated napthalenes (PCN)**: PCNs are a group chlorinated napthalenes that contain 1 to 8 chlorine atoms and are structurally similar to PCBs. Ecology has determined that the following compounds meet the draft PBT criteria in WAC 173-333-320(2): heptachloronaphthalene (CAS 32241-08-0); hexachloronaphthalene (CAS 1335-87-1); pentachloronaphthalene (CAS 1321-64-8); tetrachloronaphthalene (CAS 1335-88-2); and trichloronaphthalene (CAS 1321-65-9)

i. **Short-chain chlorinated paraffins (SSCP)**: SSCPs are chlorinated derivatives of n-alkanes that have carbon chains ranging from 10 to 13 carbon atoms and a chlorine content ranging from 50-70% by weight. Ecology has determined that SSCPs meet the draft PBT criteria in WAC 173-333-320(2).